AS ORIGINALLY FILED

FIG. 1

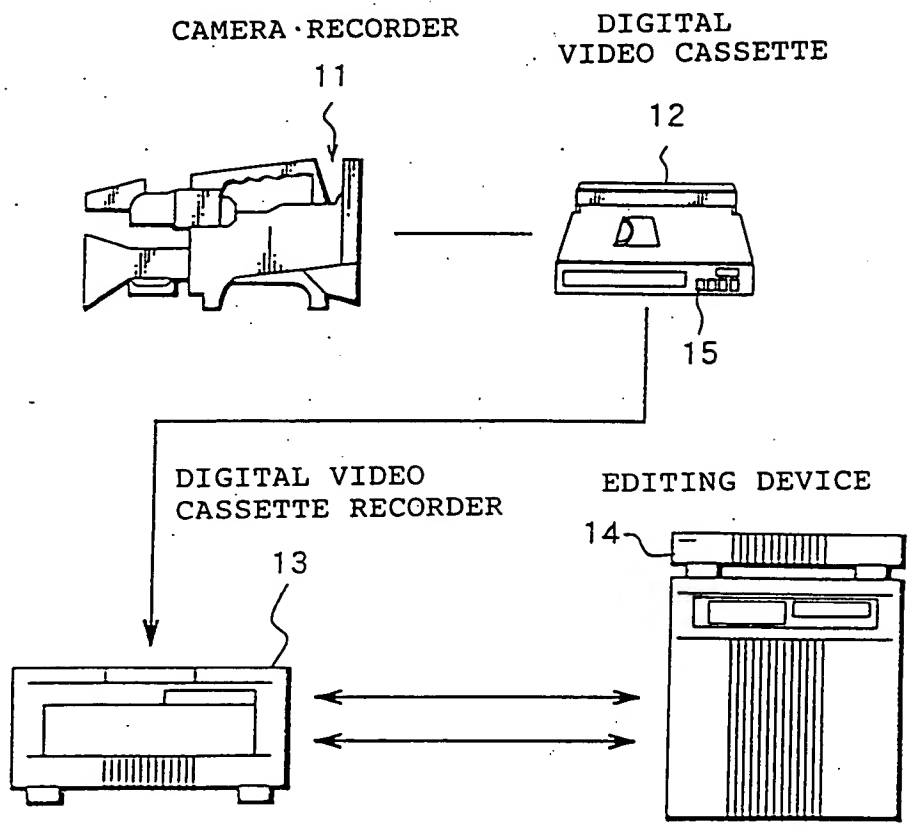

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FIG. 2

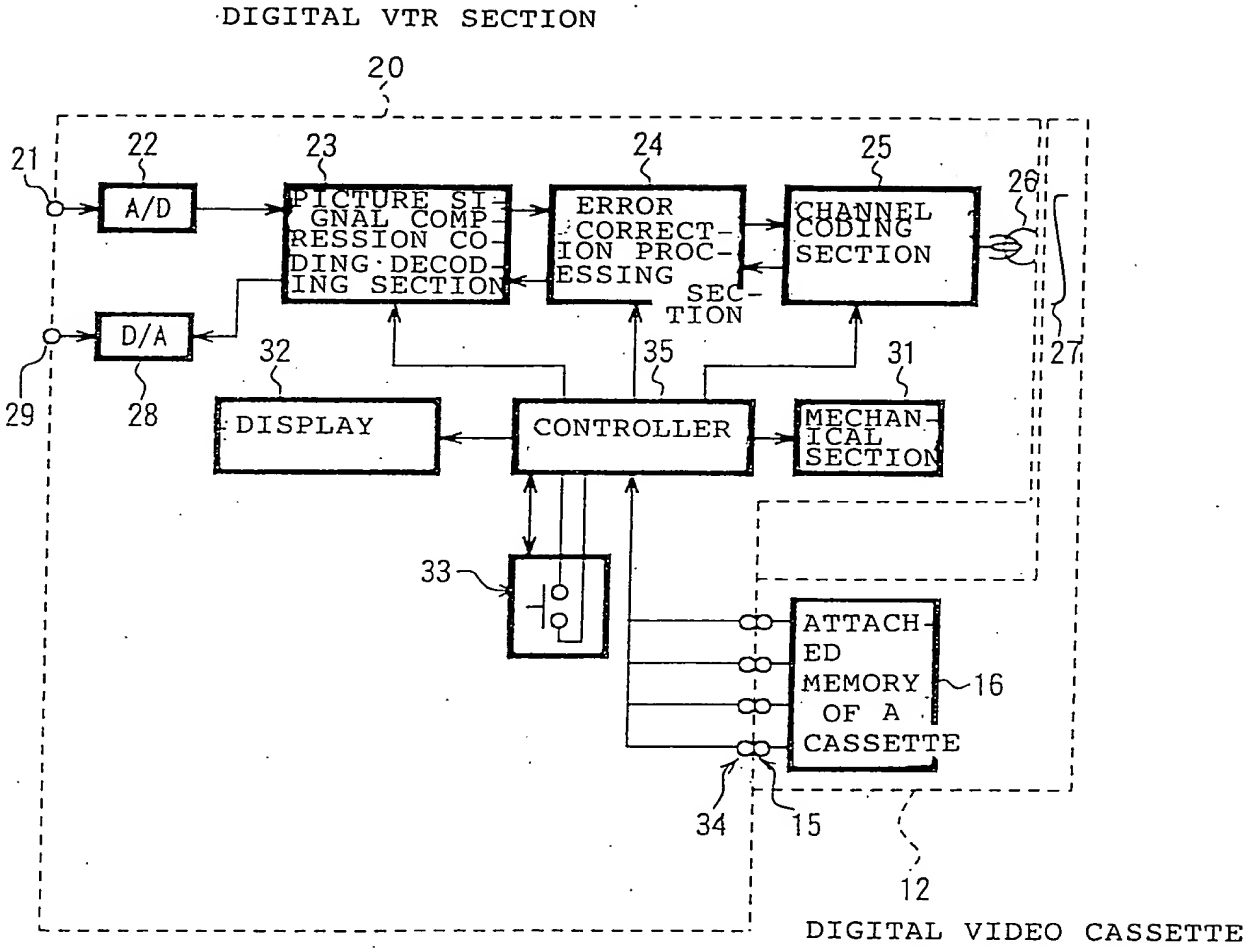

DIGITAL VTR SECTION
20
21
22
23
24
25
26
A/D
PICTURE SIGNAL COMPRESSION CODING·DECODING SECTION
ERROR CORRECTION PROCESSING SECTION
CHANNEL CODING SECTION
D/A
27
29
28
32
35
31
DISPLAY
CONTROLLER
MECHANICAL SECTION
33
ATTACHED MEMORY OF A CASSETTE
16
34
15
12
DIGITAL VIDEO CASSETTE

FIG. 3

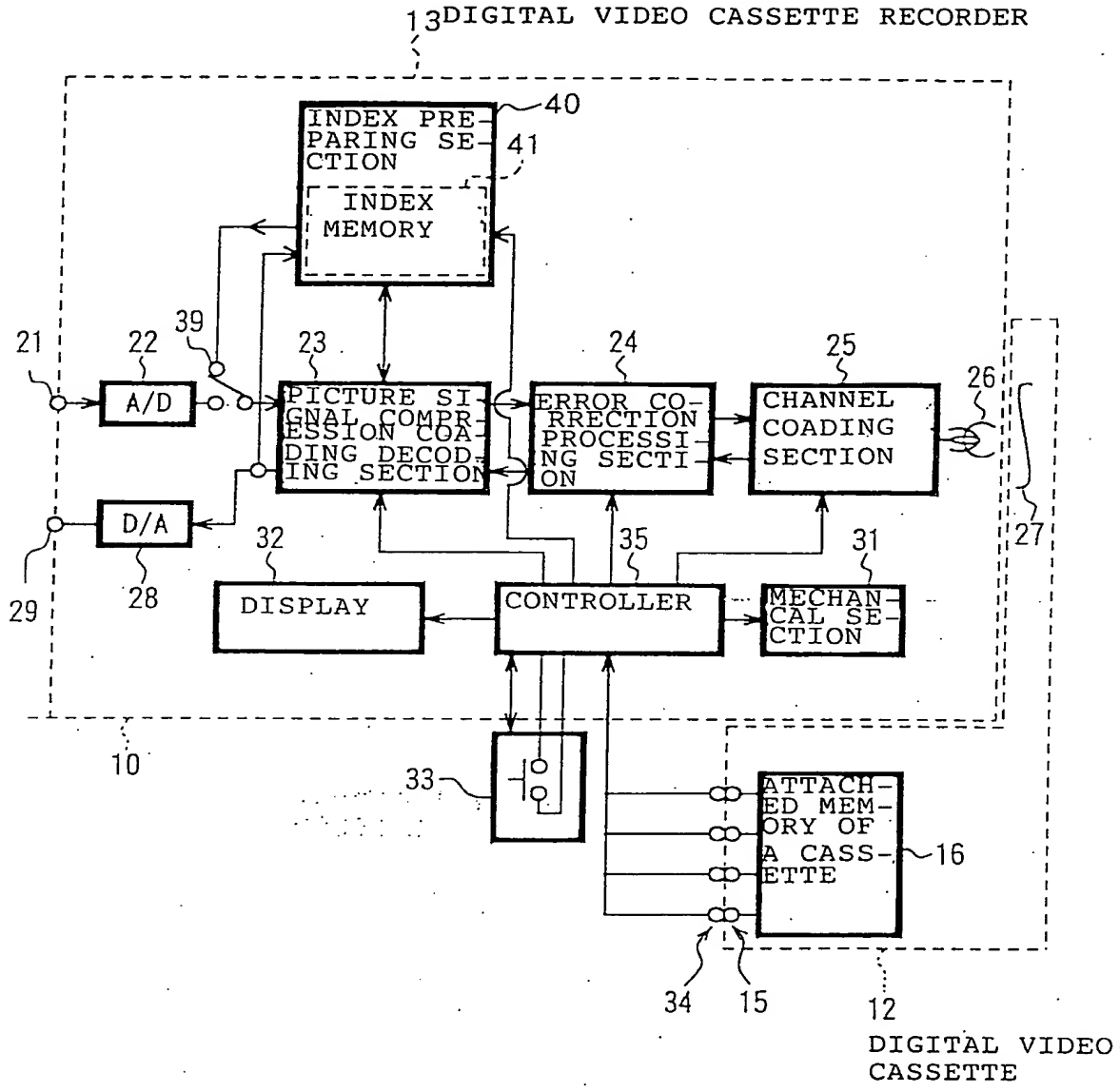
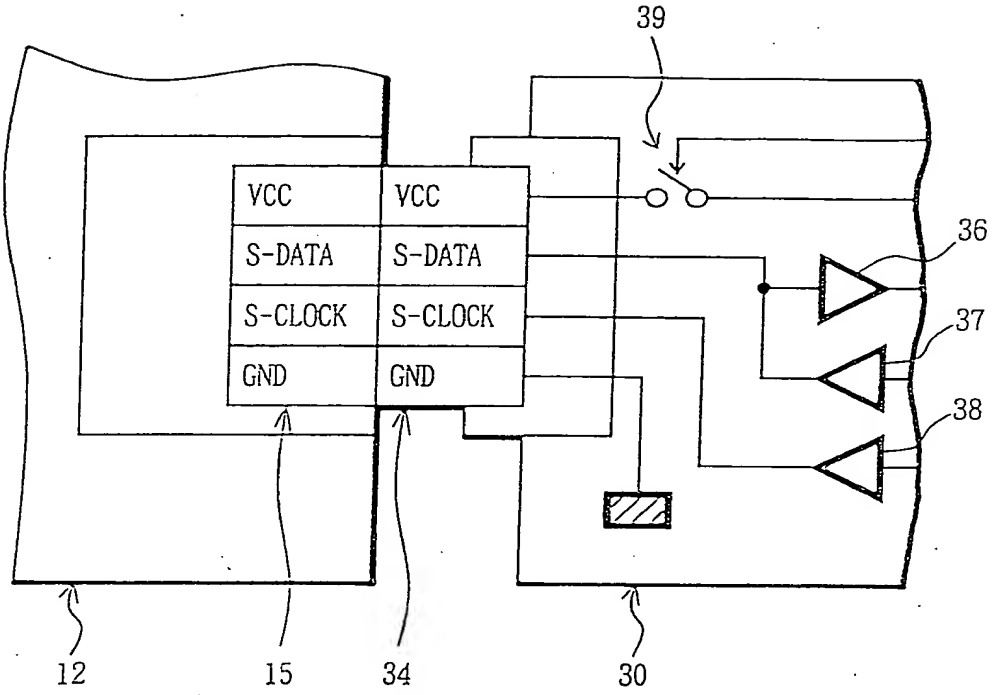

13 DIGITAL VIDEO CASSETTE RECORDER
INDEX PREPARING SECTION
40
41
INDEX MEMORY
21
22
39
23
24
25
26
A/D
PICTURE SIGNAL COMPRESSION CODING DECODING SECTION
ERROR CORRECTION PROCESSING SECTION
CHANNEL CODING SECTION
D/A
29
28
32
35
31
27
DISPLAY
CONTROLLER
MECHANICAL SECTION
10
33
ATTACHED MEMORY OF A CASSETTE
16
34
15
12
DIGITAL VIDEO CASSETTE

FIG. 4


39
VCC
VCC
S-DATA
S-DATA
S-CLOCK
S-CLOCK
GND
GND
36
37
38
12
15
34
30

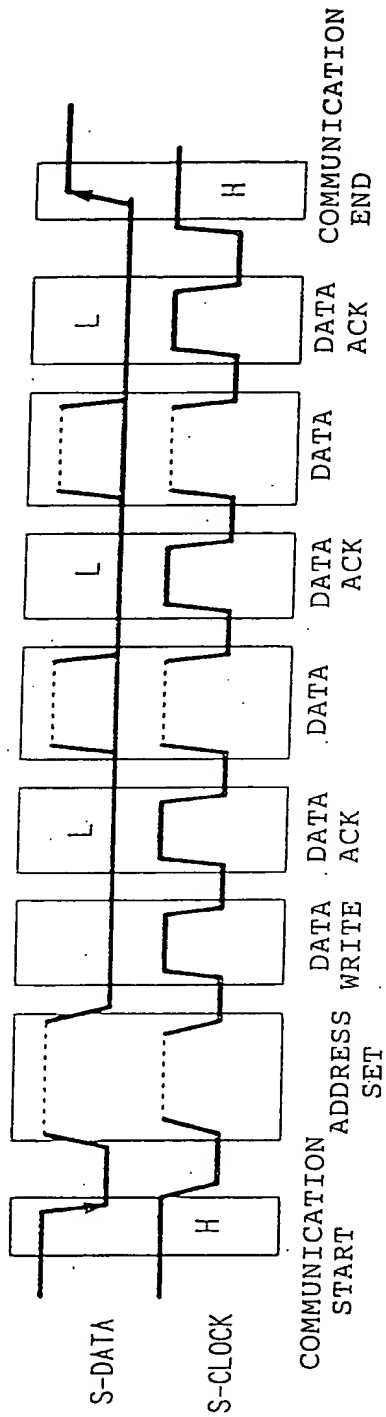

S-DATA
S-CLOCK
COMMUNICATION START
H
ADDRESS SET
DATA WRITE
L
DATA ACK
DATA
L
DATA ACK
DATA
L
DATA ACK
DATA
H
COMMUNICATION END

FIG. 5

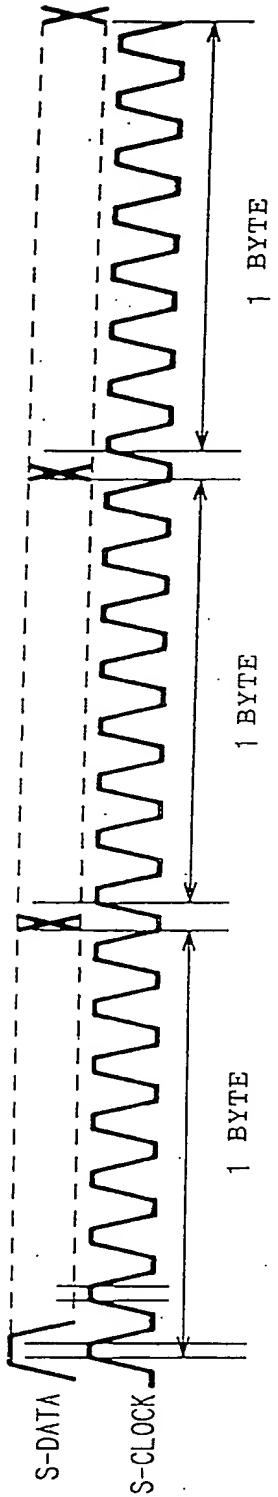


FIG. 6

Substituted Sheet (Rule 26)

FIG. 7

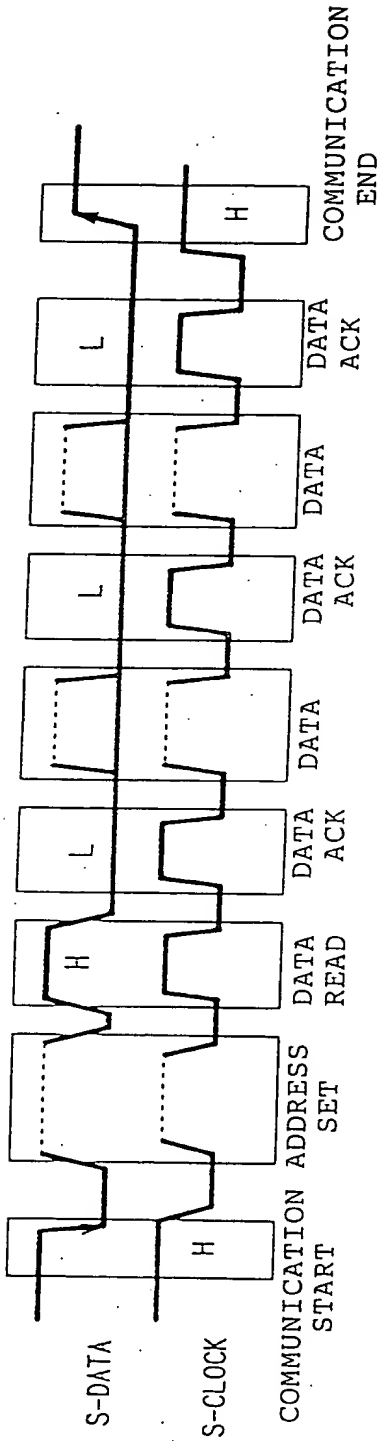


FIG. 8

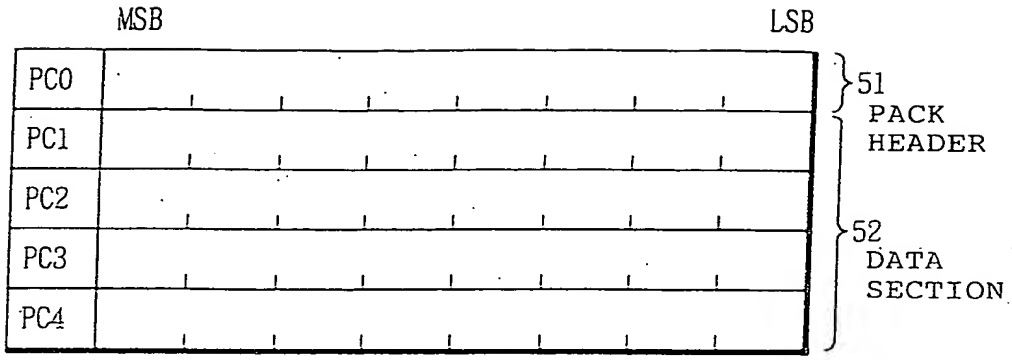


FIG. 9

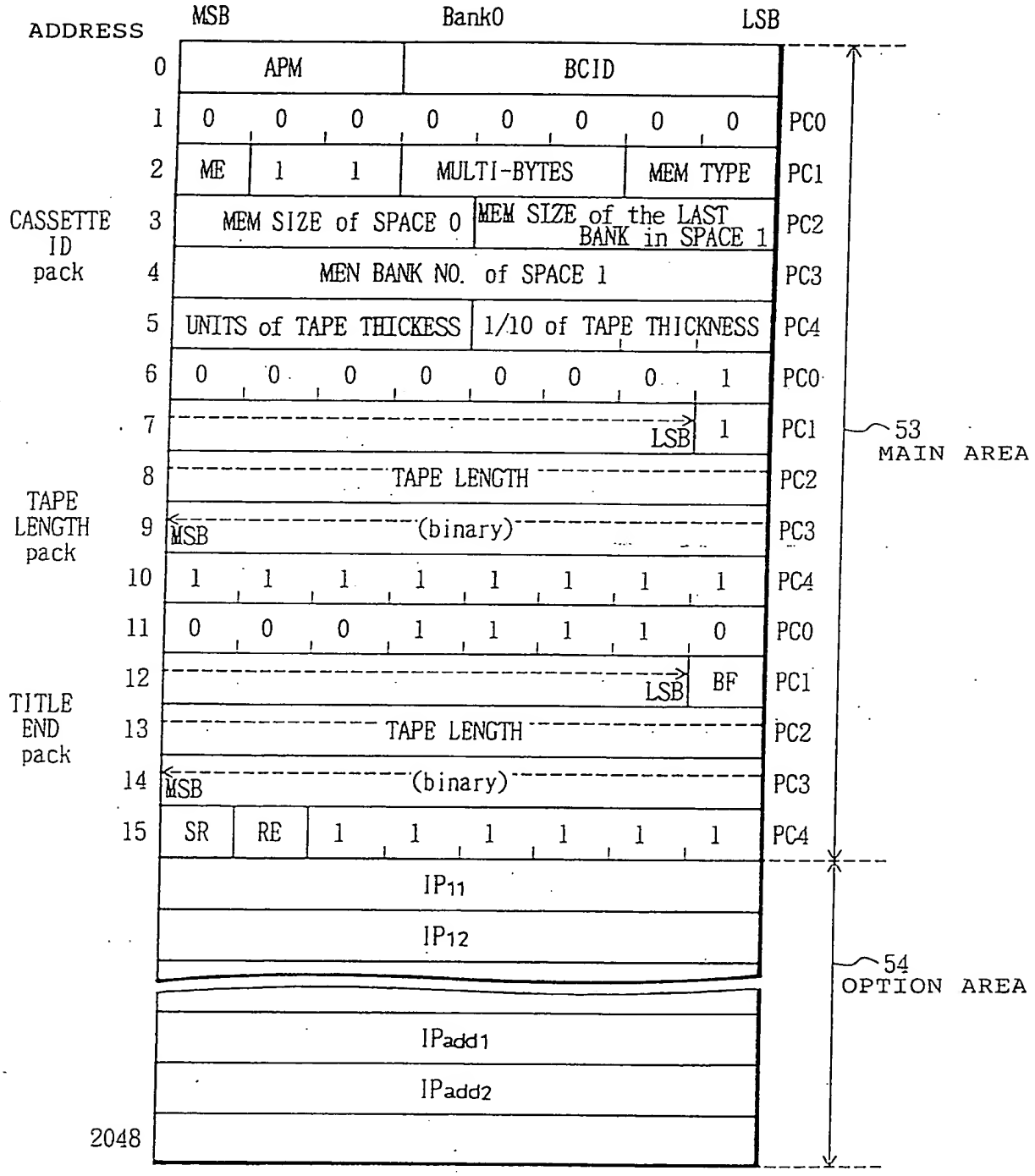

ADDRESS
MSB
Bank0
LSB
0
APM
BCID
1
0 0 0 0 0 0 0 0
PC0
2
ME
1 1
MULTI-BYTES
MEM TYPE
PC1
CASSETTE ID pack
3
MEM SIZE of SPACE 0
MEM SIZE of the LAST BANK in SPACE 1
PC2
4
MEN BANK NO. of SPACE 1
PC3
5
UNITS of TAPE THICKESS
1/10 of TAPE THICKNESS
PC4
6
0 0 0 0 0 0 0 1
PC0
7
LSB
1
PC1
53
MAIN AREA
8
TAPE LENGTH
PC2
TAPE LENGTH pack
9
MSB
(binary)
PC3
10
1 1 1 1 1 1 1 1
PC4
11
0 0 0 1 1 1 1 0
PC0
12
LSB
BF
PC1
TITLE END pack
13
TAPE LENGTH
PC2
14
MSB
(binary)
PC3
15
SR
RE
1 1 1 1 1 1
PC4
IP11
IP12
54
OPTION AREA
IPadd1
IPadd2
2048

FIG. 10

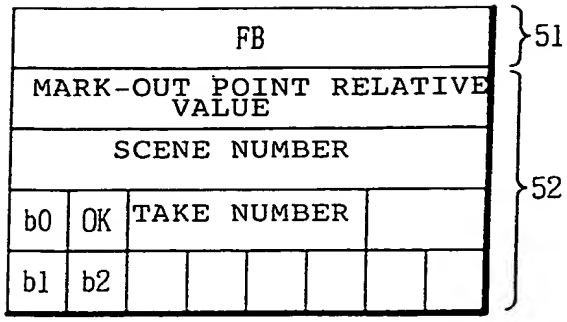


FIG. 11

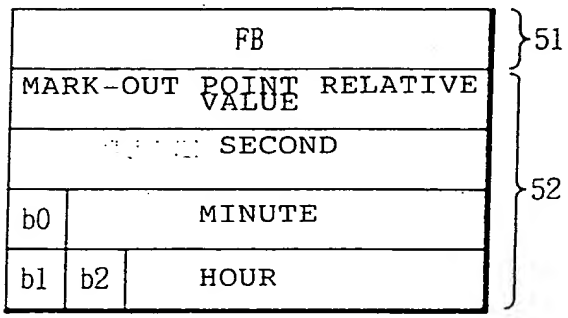


FIG. 12

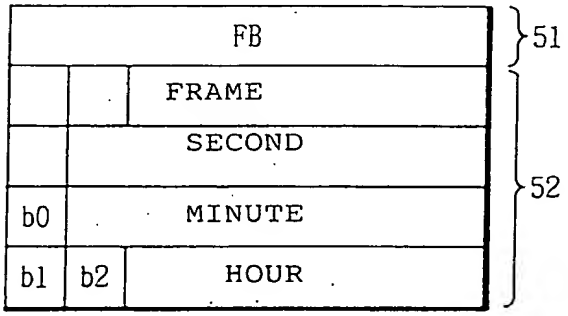


FIG. 13

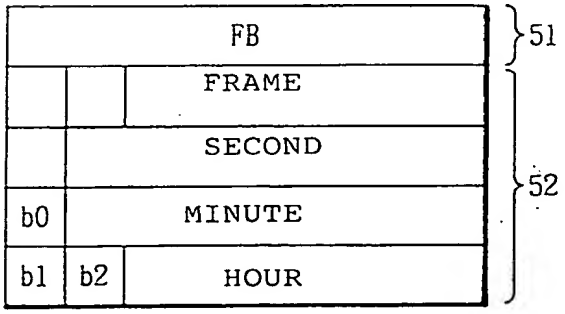


FIG. 14

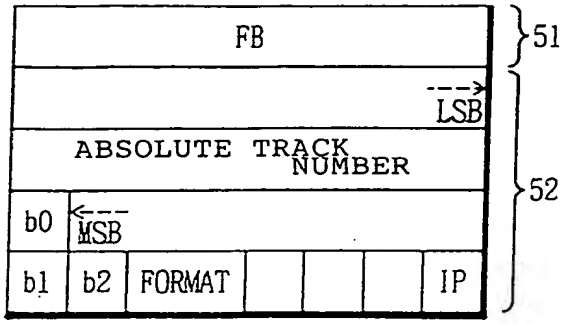


FIG. 15

	MSB							LSB
PC0	1	1	1	1	1	0	1	1
PC1	MARK-OUT POINT RELATIVE VALUE TO PC1 OF IP_{N2} (MSB)							
PC2	SCENE NUMBER (LSB)							
PC3	0	OK/NG	TAKE NUMBER (MSB)					
PC4	1	0	1	1	1	1	1	1

FIG. 16

	MSB							LSB
PC0	1	1	1	1	1	0	1	1
PC1	MARK-OUT POINT RELATIVE VALUE TO PC1 OF IP_{N1} LSB							
PC2	1	TENS of SECONDS			UNITS of SECONDS			
PC3	1	TENS of MINUTES			UNITS of MINUTES			
PC4	1	0	TENS of HOURS		UNITS of HOURS			

FIG. 17

	MSB							LSB
PC0	1	1	1	1	1	0	1	1
PC1	1	1	TENS of FRAMES		UNITS of FRAMES			
PC2	1	TENS of SECONDS			UNITS of SECONDS			
PC3	0	TENS of MINUTES			UNITS of MINUTES			
PC4	0	1	TENS of HOURS		UNITS of HOURS			

FIG. 18

	MSB							LSB
PC0	1	1	1	1	1	0	1	1
PC1			TENS of FRAMES		UNITS of FRAMES			
PC2		TENS of SECONDS			UNITS of SECONDS			
PC3	0	TENS of MINUTES			UNITS of MINUTES			
PC4	0	0	TENS of HOURS		UNITS of HOURS			

FIG. 19

	MSB							LSB
PC0	1	1	1	1	1	0	1	1
PC1	----------→ LSB							
PC2	----------ABSOLUTE TRACK NUMBER----------							
PC3	1	←---------- MSB						
PC4	0	0	FORMAT		1	1	1	IP

FIG. 20

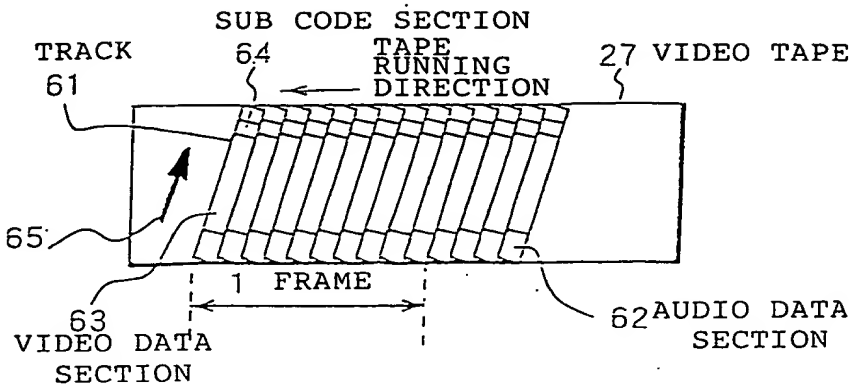


FIG. 21

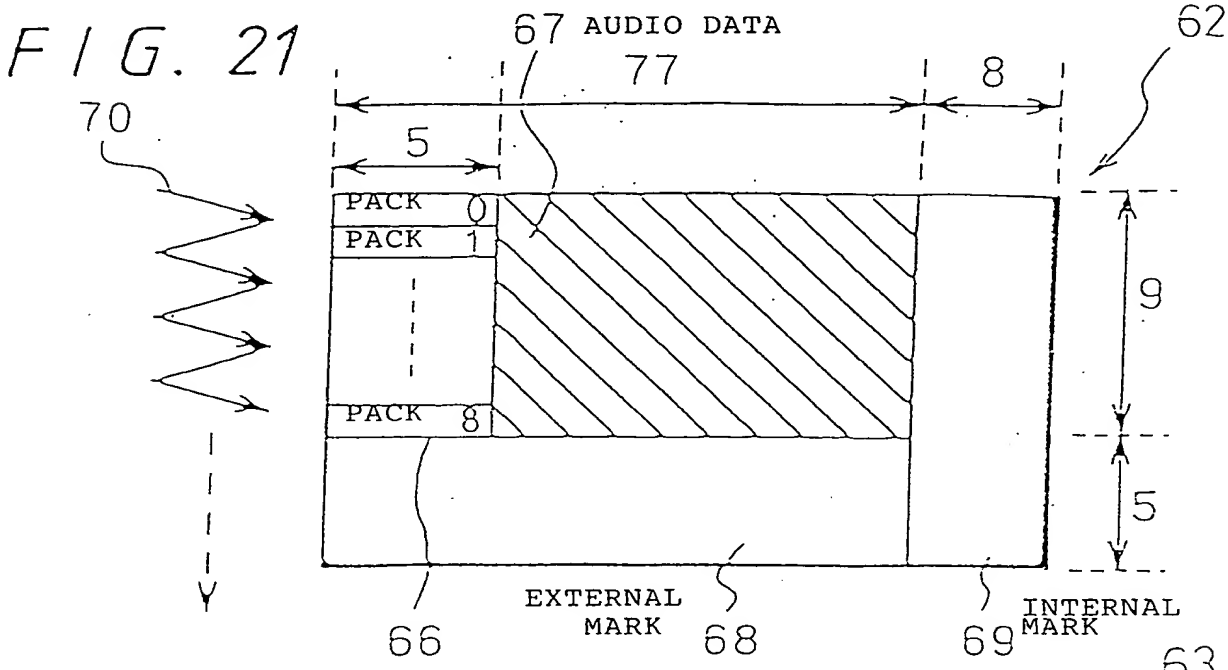


FIG. 22

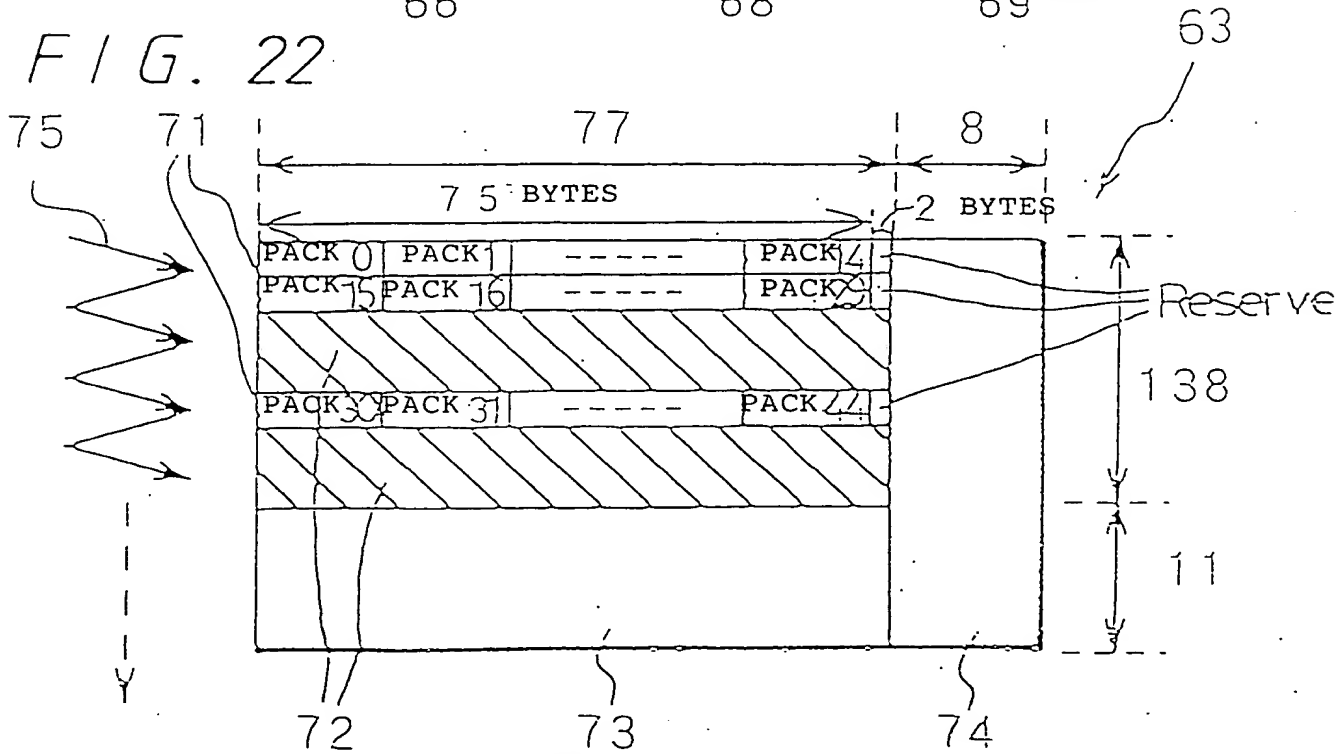


FIG. 23

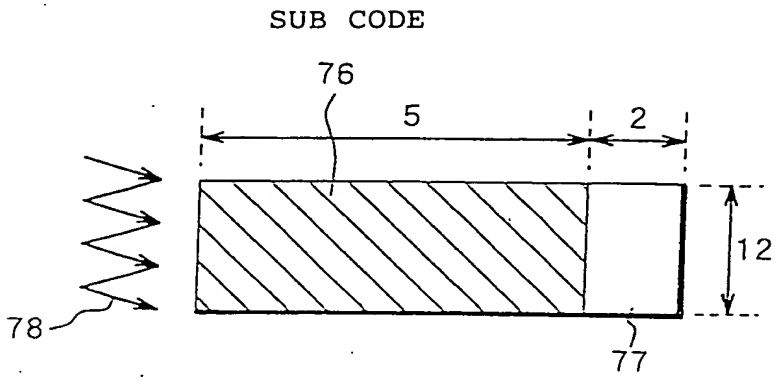

SUB CODE
76
5
2
12
78
77

FIG. 24

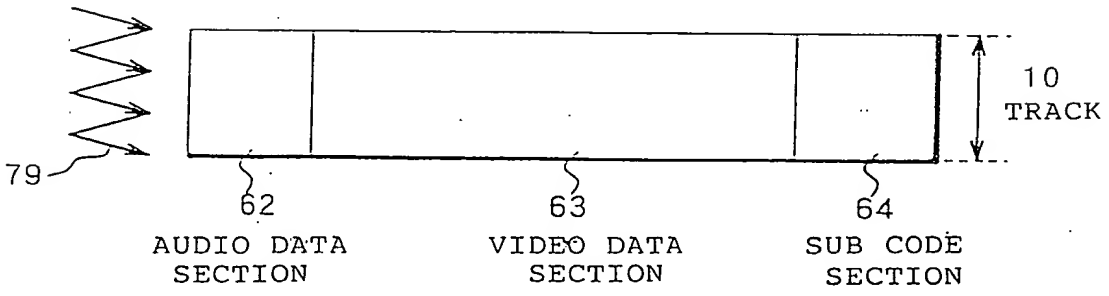

10
TRACK
79
62
63
64
AUDIO DATA SECTION
VIDEO DATA SECTION
SUB CODE SECTION

FIG. 25

MSB ID0 LSB		MSB ID1 LSB	data
FR		SB No.	SUB CODE DATA
1	AP3	0	FB (IPadd1)
1	TAG	1	FB (IPadd2)
1	TAG	2	FB (CUE)
1	TAG	3	TTC
1	TAG	4	TTC ro BIN or NO INFO
1	TAG	5	TTC
1	AP3	6	FB (IP_{n1})
1	TAG	7	FB (IP_{n2})
1	TAG	8	
1	TAG	9	TTC
1	TAG	10	TTC or BIN or NO INFO
1	APT	11	TTC

Absolute track No.

FIG. 26

MSB ID0 LSB			MSB ID1 LSB	data
FR			SB No.	SUB CODE DATA
0	AP3	Absolute track No.	0	FO (PM)
0	TAG		1	FB (R_1)
0	TAG		2	FB (R_2)
0	TAG	Absolute track No.	3	TTC
0	TAG		4	REC DATE or NO INFO
0	TAG		5	REC TIME or NO INFO
0	AP3	Absolute track No.	6	RESERVE
0	TAG		7	RESERVE
0	TAG		8	RESERVE
0	TAG	Absolute track No.	9	TTC
0	TAG		10	REC DATE or NO INFO
0	APT		11	REC TIME or NO INFO

FIG. 27(a)

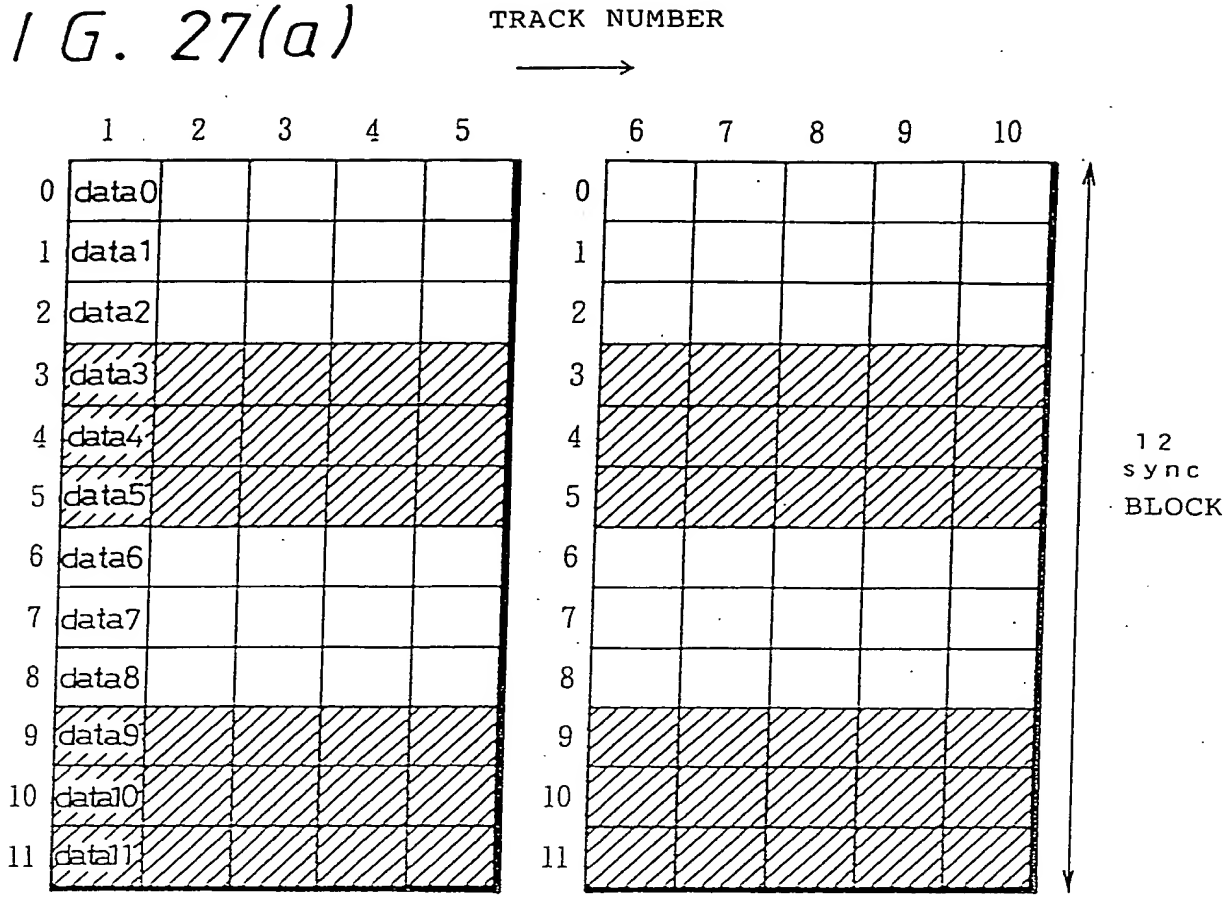


FIG. 27(b)

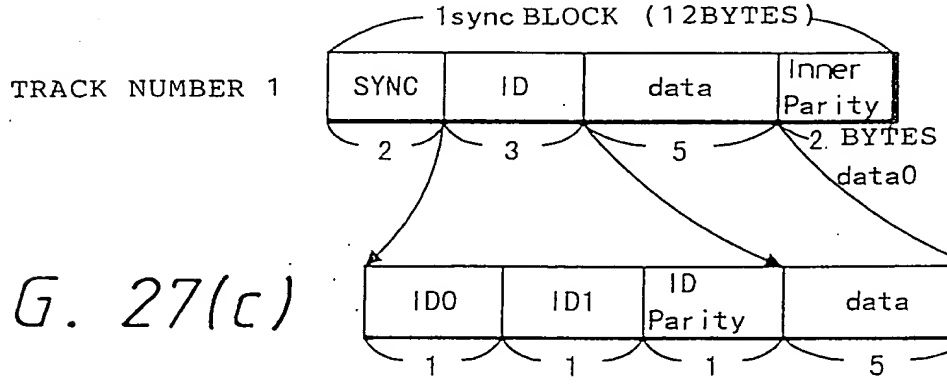


FIG. 27(c)

FIG. 28

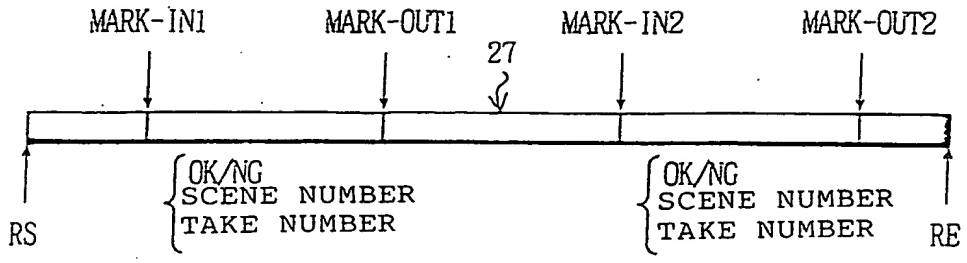


FIG. 29

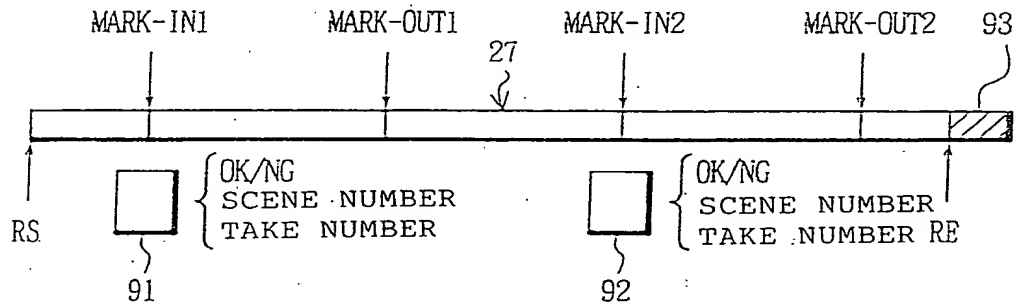


FIG. 30

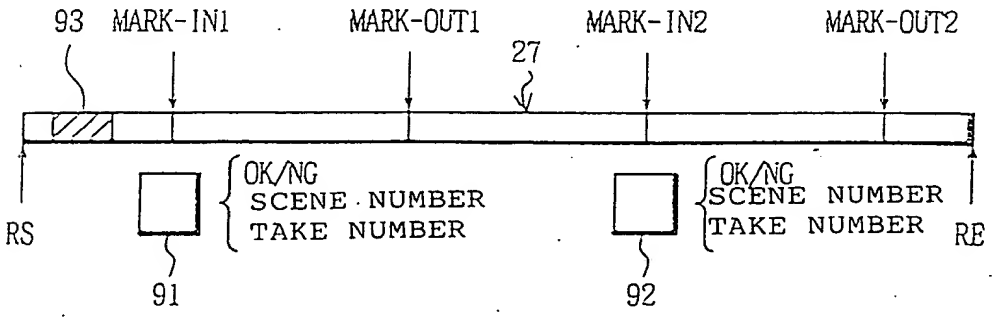


FIG. 31

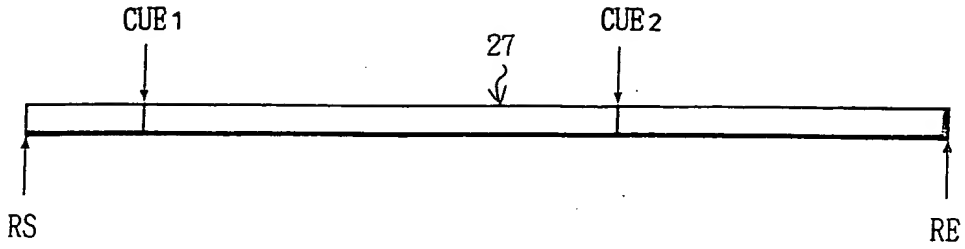


FIG. 32

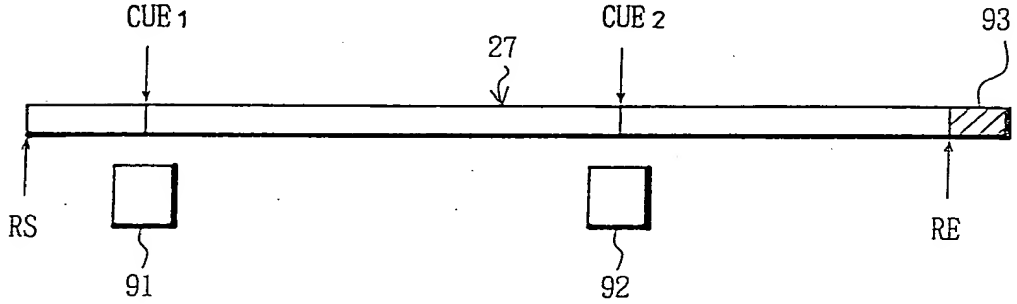


FIG. 33

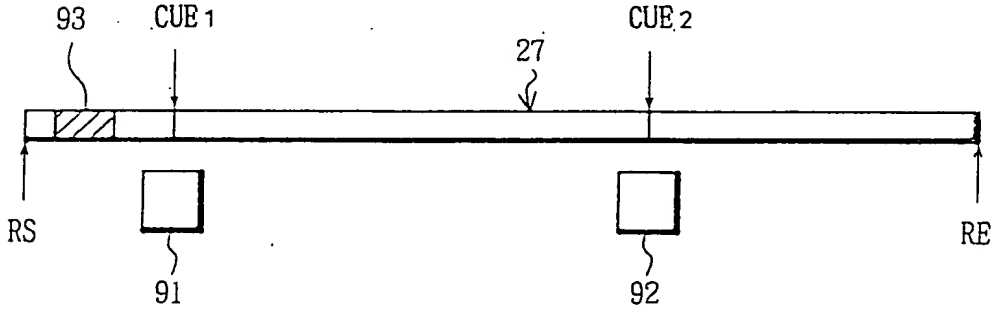


FIG. 34

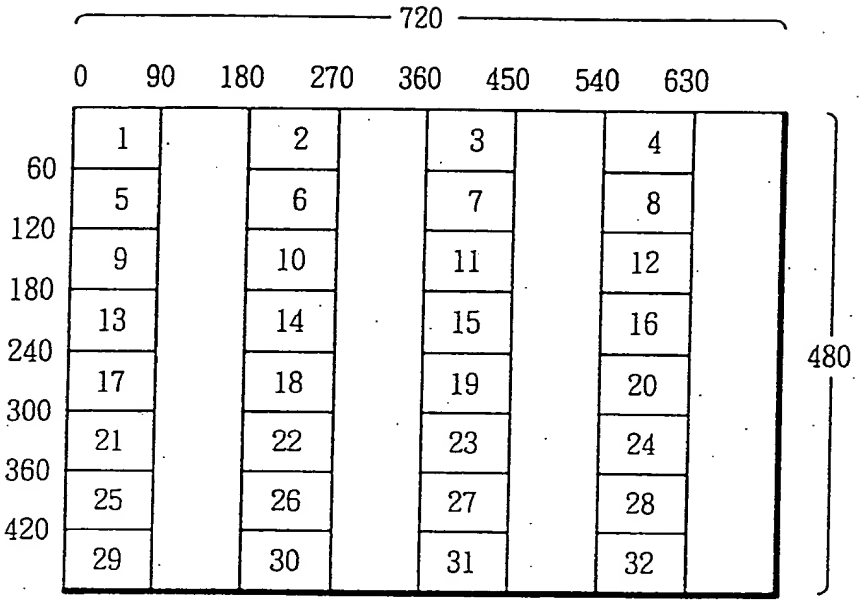

720
0
90
180
270
360
450
540
630
60
120
180
240
300
360
420
480
1
2
3
4
5
6
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FIG. 35

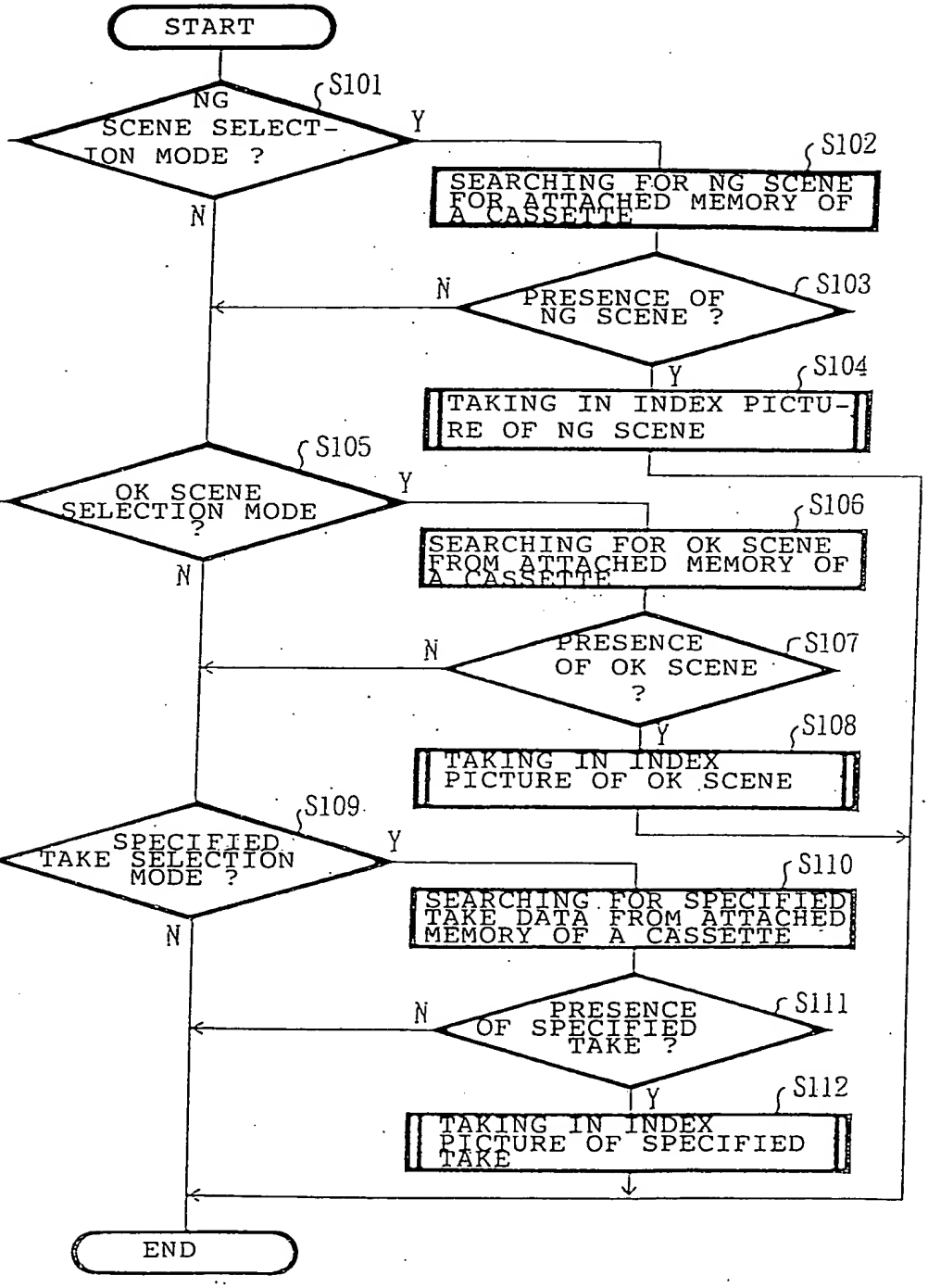

START
S101
NG SCENE SELECTION MODE ?
Y
N
S102
SEARCHING FOR NG SCENE FOR ATTACHED MEMORY OF A CASSETTE
N
S103
PRESENCE OF NG SCENE ?
Y
S104
TAKING IN INDEX PICTURE OF NG SCENE
S105
OK SCENE SELECTION MODE ?
Y
N
S106
SEARCHING FOR OK SCENE FROM ATTACHED MEMORY OF A CASSETTE
N
S107
PRESENCE OF OK SCENE ?
Y
S108
TAKING IN INDEX PICTURE OF OK SCENE
S109
SPECIFIED TAKE SELECTION MODE ?
Y
N
S110
SEARCHING FOR SPECIFIED TAKE DATA FROM ATTACHED MEMORY OF A CASSETTE
N
S111
PRESENCE OF SPECIFIED TAKE ?
Y
S112
TAKING IN INDEX PICTURE OF SPECIFIED TAKE
END

FIG. 36

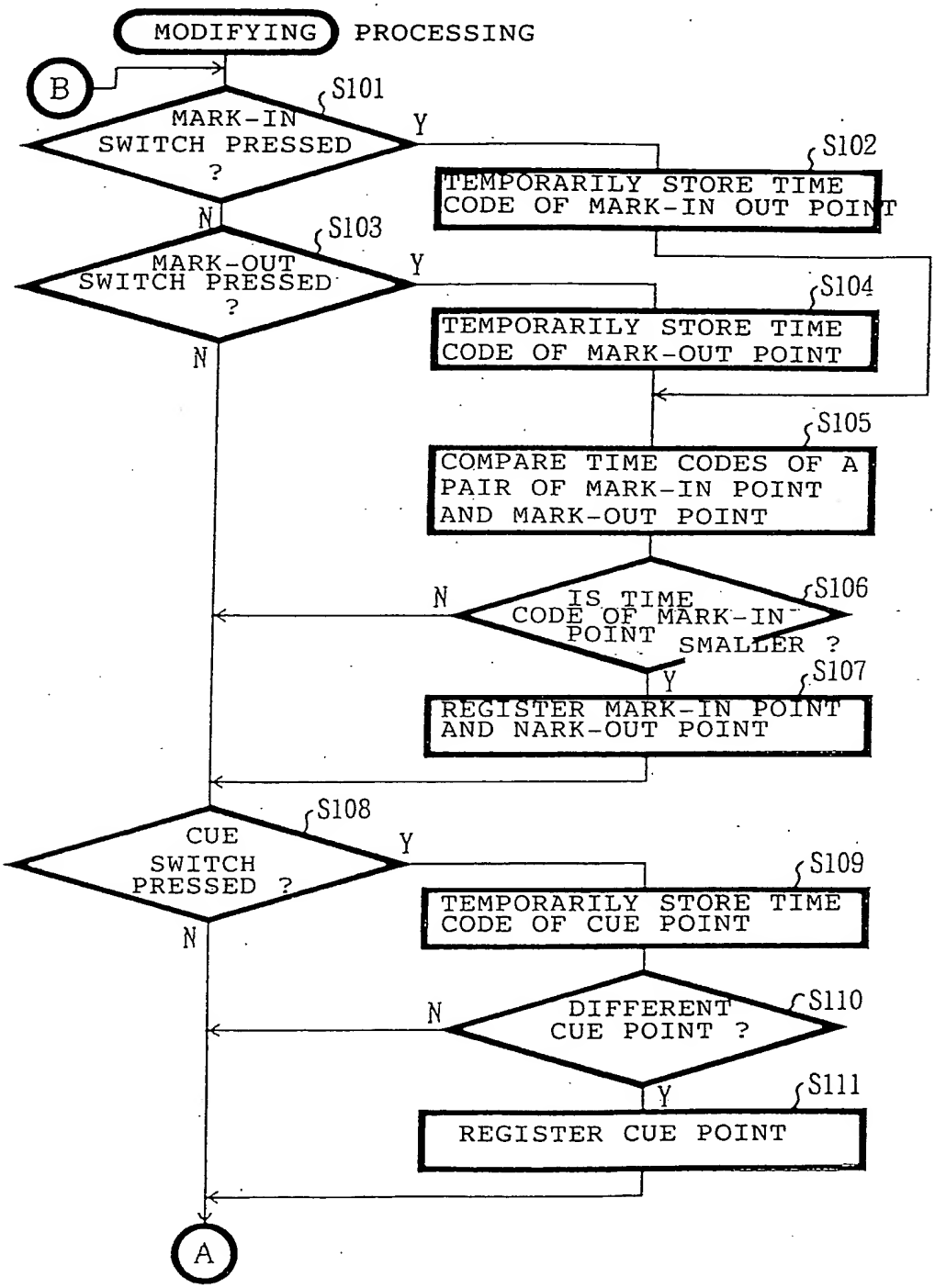

MODIFYING PROCESSING
B
S101
MARK-IN SWITCH PRESSED ?
Y
N
S102
TEMPORARILY STORE TIME CODE OF MARK-IN OUT POINT
S103
MARK-OUT SWITCH PRESSED ?
Y
N
S104
TEMPORARILY STORE TIME CODE OF MARK-OUT POINT
S105
COMPARE TIME CODES OF A PAIR OF MARK-IN POINT AND MARK-OUT POINT
S106
IS TIME CODE OF MARK-IN POINT SMALLER ?
N
Y
S107
REGISTER MARK-IN POINT AND NARK-OUT POINT
S108
CUE SWITCH PRESSED ?
Y
N
S109
TEMPORARILY STORE TIME CODE OF CUE POINT
S110
DIFFERENT CUE POINT ?
N
Y
S111
REGISTER CUE POINT
A

FIG. 37

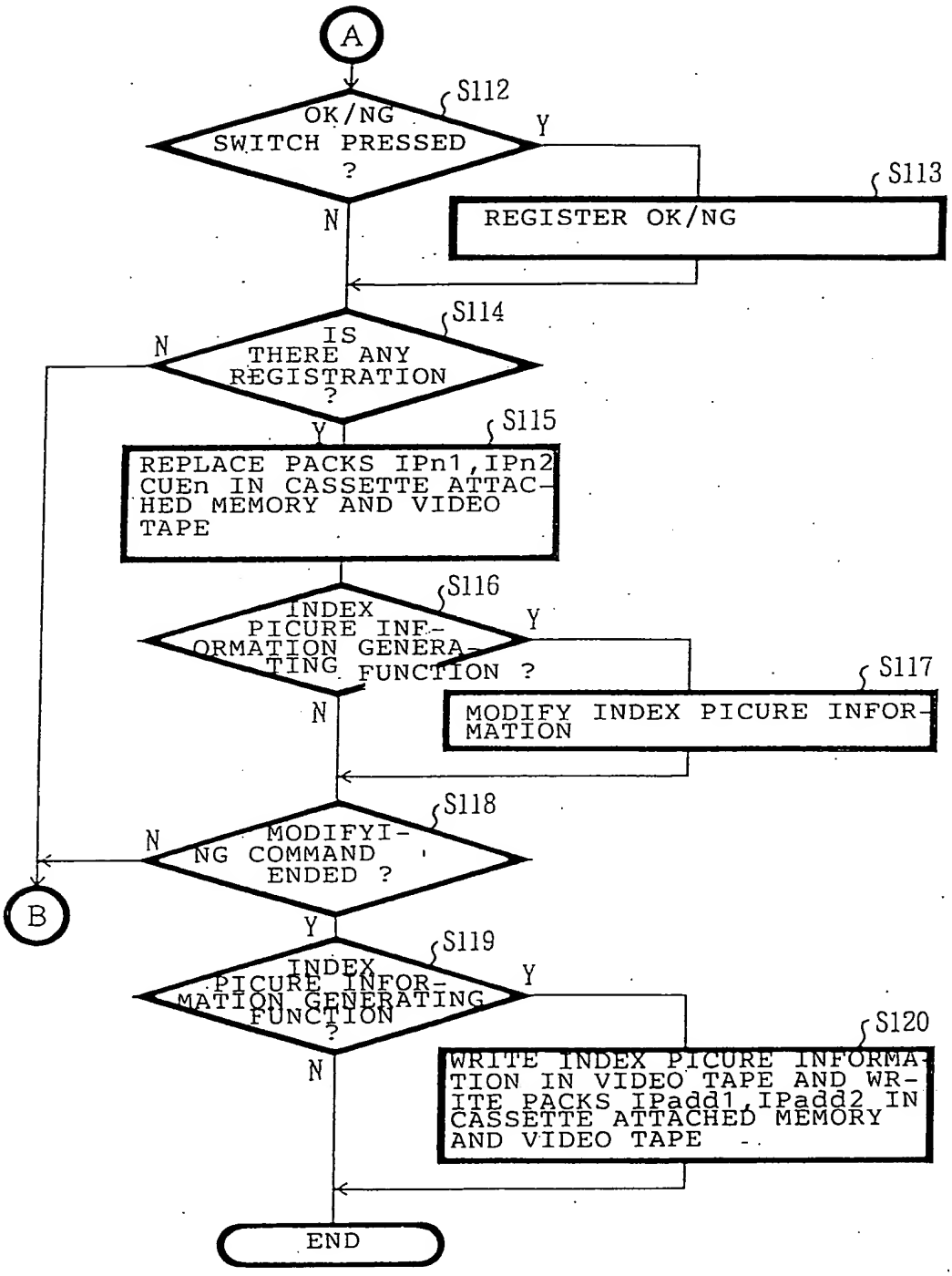

A
S112
OK/NG SWITCH PRESSED ?
Y
N
S113
REGISTER OK/NG
S114
IS THERE ANY REGISTRATION ?
N
Y
S115
REPLACE PACKS IPn1,IPn2 CUEn IN CASSETTE ATTACHED MEMORY AND VIDEO TAPE
S116
INDEX PICURE INFORMATION GENERATING FUNCTION ?
Y
N
S117
MODIFY INDEX PICURE INFORMATION
S118
MODIFYING COMMAND ENDED ?
N
Y
B
S119
INDEX PICURE INFORMATION GENERATING FUNCTION ?
Y
N
S120
WRITE INDEX PICURE INFORMATION IN VIDEO TAPE AND WRITE PACKS IPadd1,IPadd2 IN CASSETTE ATTACHED MEMORY AND VIDEO TAPE
END

FIG. 38

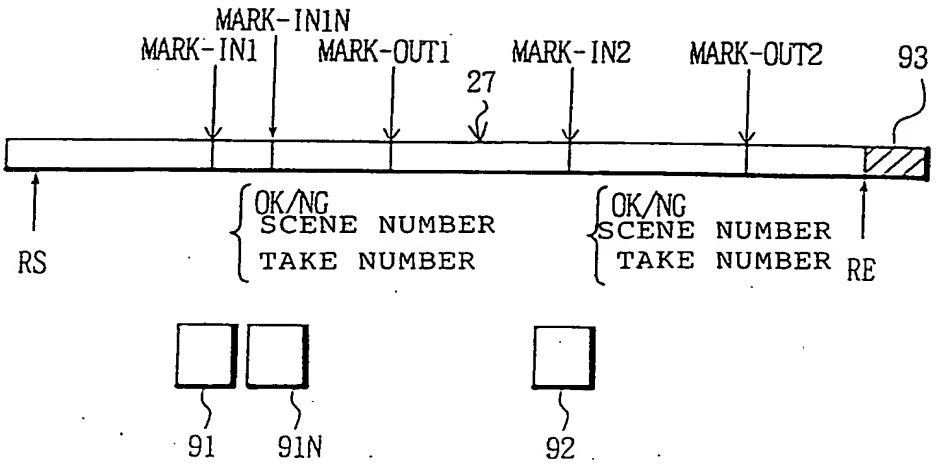
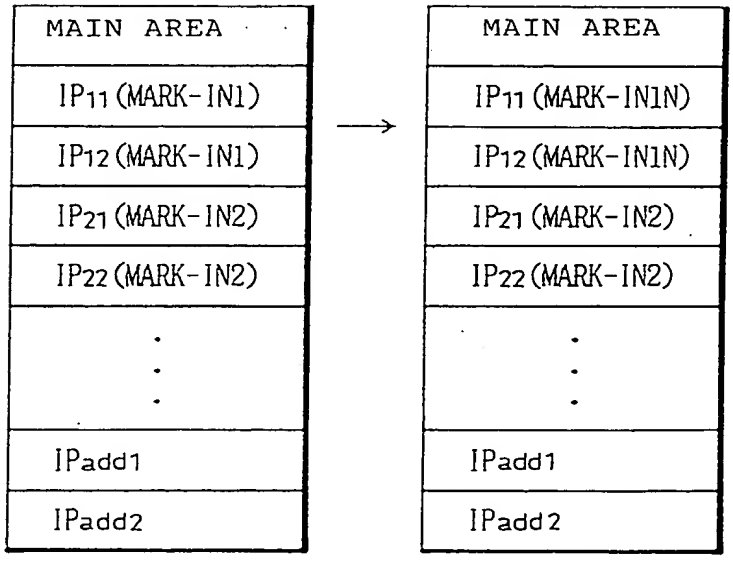


FIG. 39(a) FIG. 39(b)



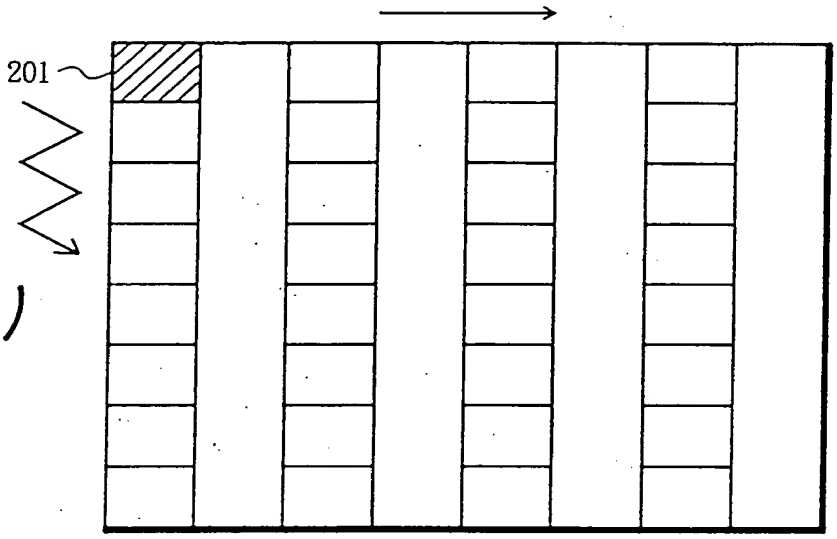


FIG. 40(a)

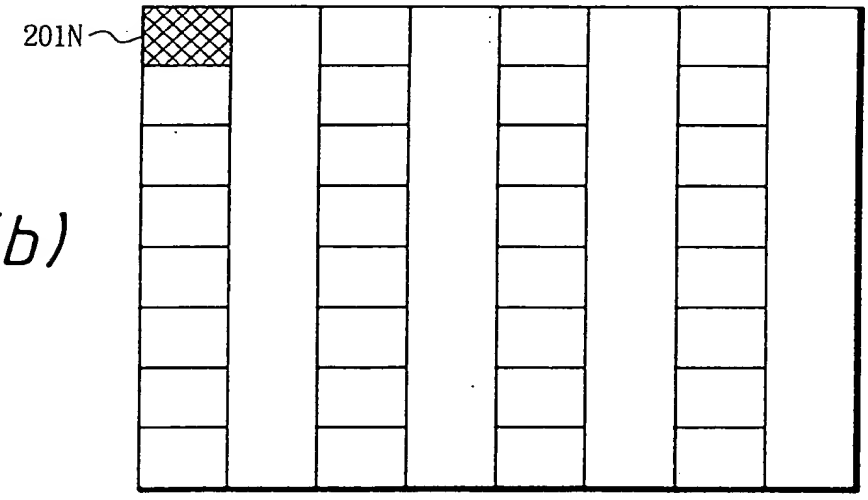


FIG. 40(b)

FIG. 41(a)

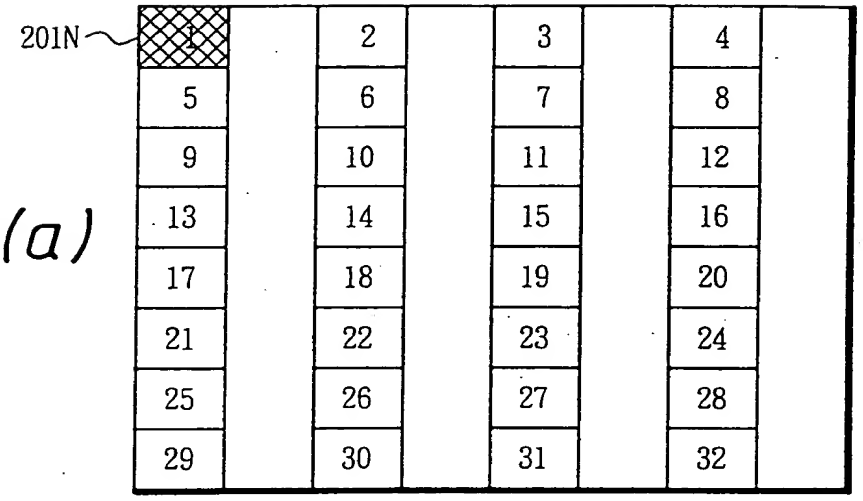


FIG. 41(b)

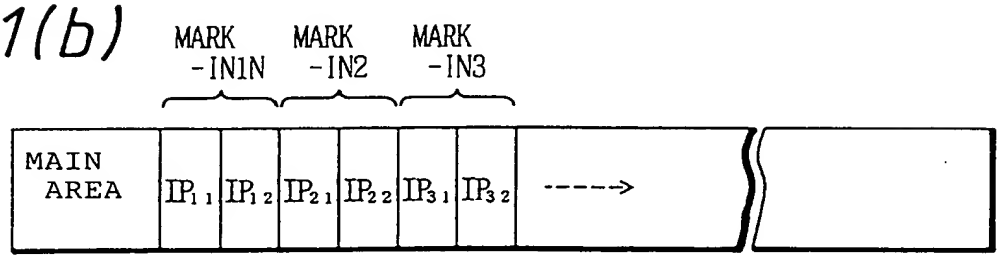


FIG. 42

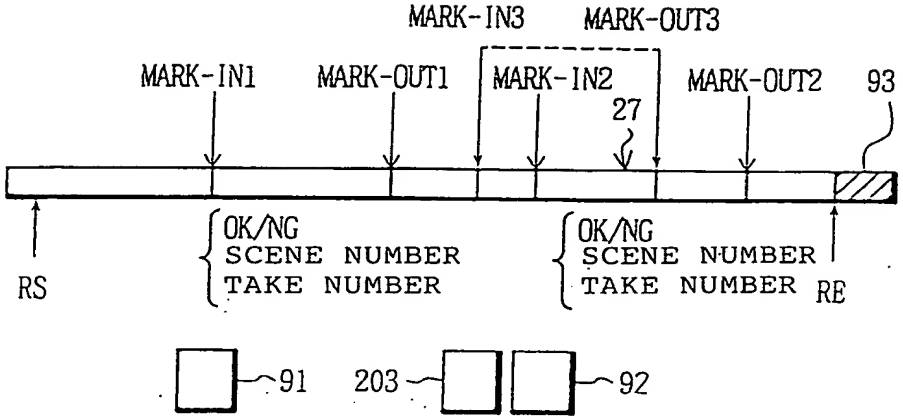


FIG. 43(a) FIG. 43(b)

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN2)
IP21 (MARK-IN2)
. . . . .
IPadd1
IPadd2

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN3)
IP22 (MARK-IN3)
IP31 (MARK-IN2)
IP32 (MARK-IN2)
. . . . .
IPadd1
IPadd2

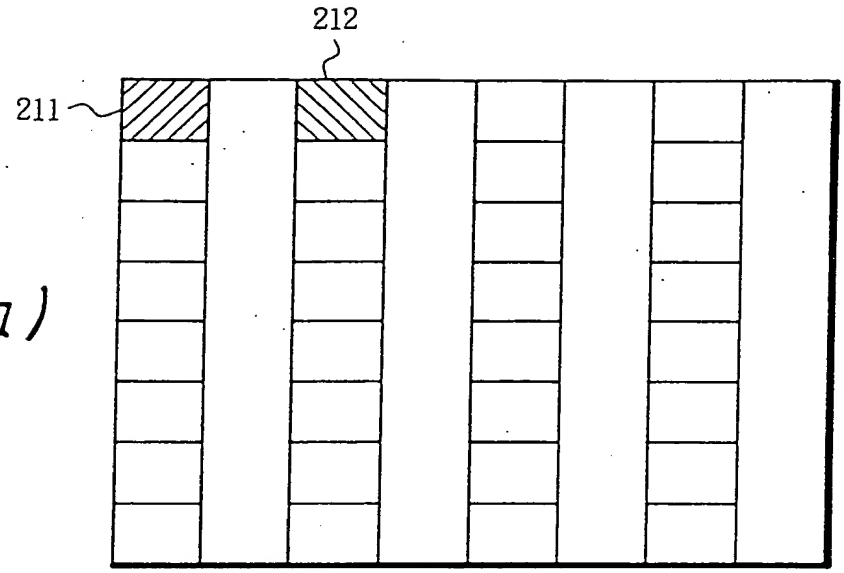


FIG. 44(a)

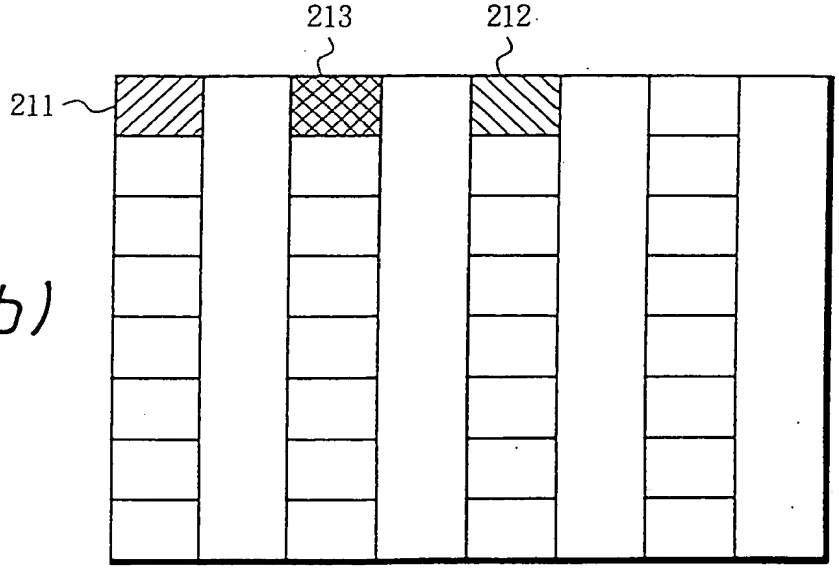


FIG. 44(b)

FIG. 45(a)

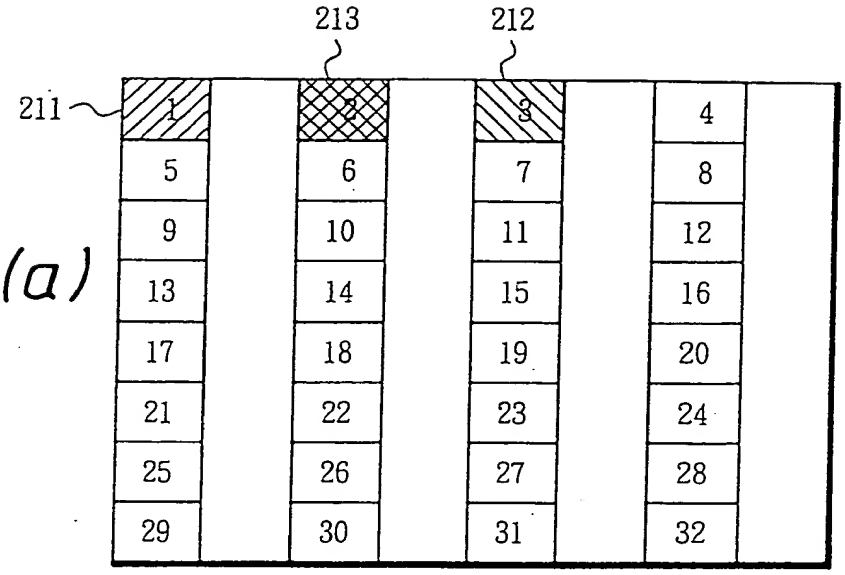


FIG. 45(b)

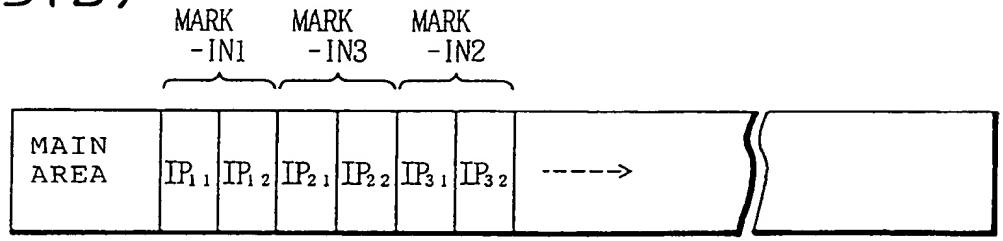


FIG. 46

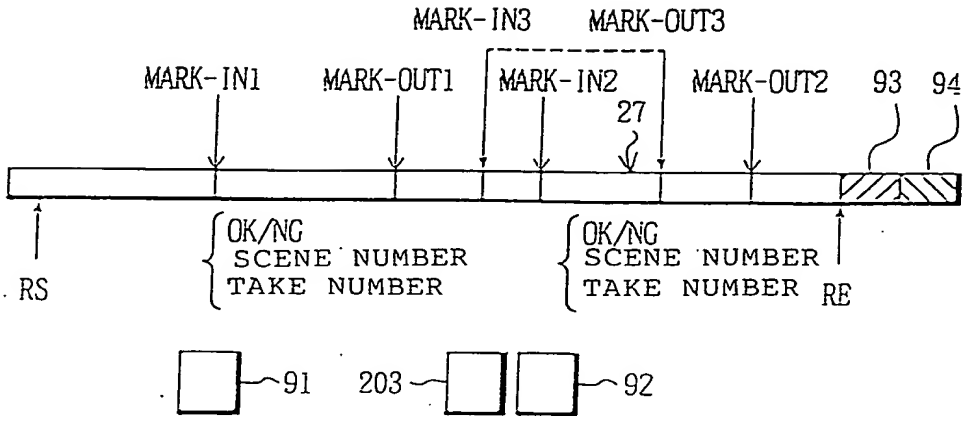


FIG. 47(a) FIG. 47(b)

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN2)
IP21 (MARK-IN2)
. . . . .
IPadd1 (VALID)
IPadd2 (VALID)

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN3)
IP22 (MARK-IN3)
IP31 (MARK-IN2)
IP32 (MARK-IN2)
. . .
IPadd1 (VOID)
IPadd2 (VOID)
IPadd1N (VOID)
IPadd2N (VOID)

FIG. 48

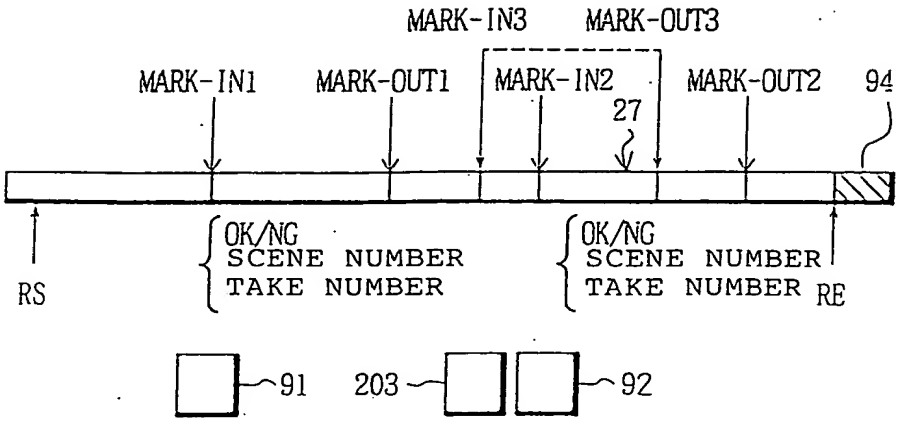


FIG. 49(a) FIG. 49(b)

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN2)
IP21 (MARK-IN2)
. . . . .
IPadd1
IPadd2

MAIN AREA
IP11 (MARK-IN1)
IP12 (MARK-IN1)
IP21 (MARK-IN3)
IP22 (MARK-IN3)
IP31 (MARK-IN2)
IP32 (MARK-IN2)
. . . . .
IPadd1N
IPadd2N

FIG. 50

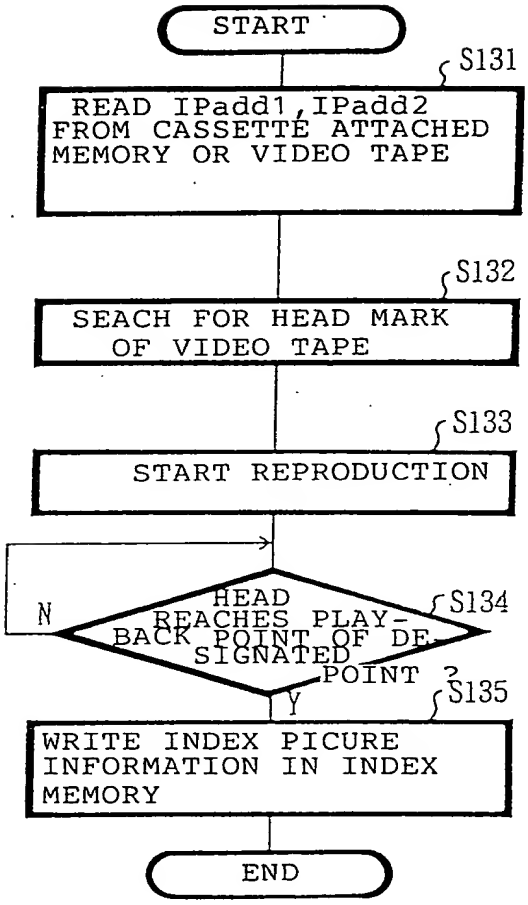
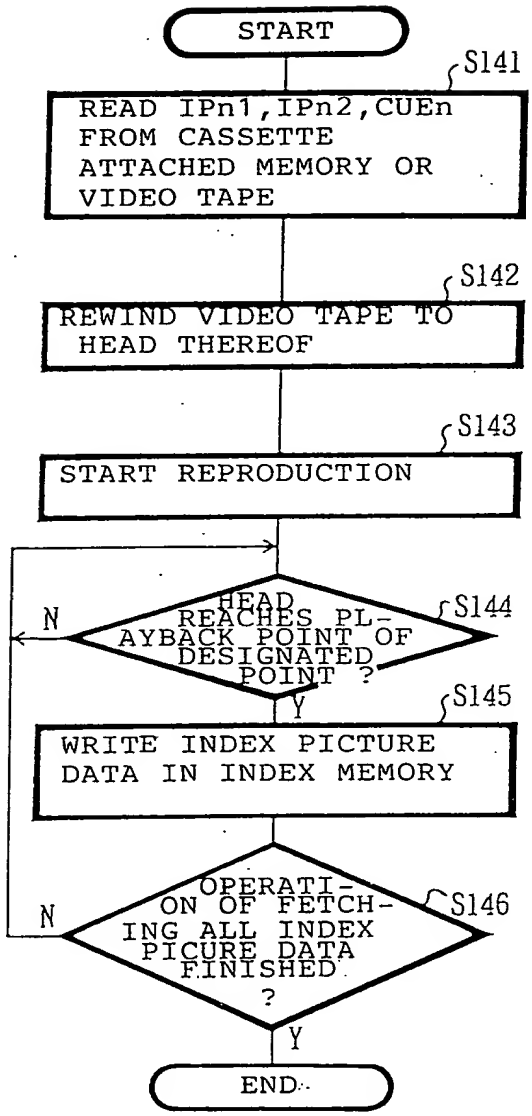

START
S131
READ IPadd1, IPadd2 FROM CASSETTE ATTACHED MEMORY OR VIDEO TAPE
S132
SEACH FOR HEAD MARK OF VIDEO TAPE
S133
START REPRODUCTION
S134
HEAD REACHES PLAY-BACK POINT OF DESIGNATED POINT ?
N
Y
S135
WRITE INDEX PICURE INFORMATION IN INDEX MEMORY
END

FIG. 51


START
S141
READ IPn1,IPn2,CUEn FROM CASSETTE ATTACHED MEMORY OR VIDEO TAPE
S142
REWIND VIDEO TAPE TO HEAD THEREOF
S143
START REPRODUCTION
S144
HEAD REACHES PLAYBACK POINT OF DESIGNATED POINT ?
N
Y
S145
WRITE INDEX PICTURE DATA IN INDEX MEMORY
S146
OPERATION OF FETCHING ALL INDEX PICURE DATA FINISHED ?
N
Y
END

EXPLANATION OF REFERENCE NUMBERS

11	camera/recorder
12	digital video cassette
13	digital video cassette recorder
14	editing apparatus
16	cassette attached memory
20	digital VTR unit
27	video tape
33	operation unit
35	controller
40	index generating unit
41	index memory